## State of California AIR RESOURCES BOARD

## EXECUTIVE ORDER U-R-3-4

Relating to Certification of New Heavy-Duty Off-Road Equipment Engines

## VOLVO CONSTRUCTION EQUIPMENT, VOLVO AB

Pursuant to the authority vested in the Air Resources Board by Sections 43000.5, 43013 and 43018 of the Health and Safety Code; and

Pursuant to the authority vested in the undersigned by Sections 39515 and 39516 of the Health and Safety Code and Executive Order G-45-9;

IT IS ORDERED AND RESOLVED: That the following Volvo Construction Equipment, Volvo AB 1996 model-year engine, with rated power between 175 and 750 horsepower, and exhaust emission control systems are certified as described below for use in heavy-duty off-road equipment:

Typical Equipment Usage: Excavators, Haulers, Loaders

Fuel Type: Diesel

Fuel Type: Diesei			Exhaust Emission Control
Engine Family	<u>Liters</u>	(Cubic Inches)	Systems and Special Features
TVS6.7R6DARA (TD73)	6.7	(408)	Turbocharger Charge Air Cooler Smoke Puff Limiter

Engine models and codes are listed on attachments. Production engines shall be in all material respects the same as those for which certification is granted.

The total hydrocarbons (THC), carbon monoxide (CO), nitrogen oxides (NOx), and particulate matters (PM) certification exhaust emission standards, in grams per brake horsepower-hour (g/bhp-hr), and the opacity of smoke emission standards, in percent (%), during acceleration (Accel), lugging (Lug), and peak (Peak) modes, for this engine family are (Title 13, California Code of Regulations, Section 2423):

:C10N 242	•		_	Smoke	<b>Opacity</b>	(%)_
Exha	ust Emissic	ons (g/bhp	<u>-hr)</u>	311086	<u>opus: s.r.</u>	_
	·	<u>NOx</u>	PM_	<u>Accel</u>	<u>Lug</u>	<u>Peak</u>
THC	<u>co</u> _	NOA	<u> </u>	00	15	50
1.0	8.5	6.9	0.4	20	13	
1.0						/I. 1 h.v

The THC, CO, NOx and PM exhaust emission certification values, in g/bhp-hr, and the opacity of smoke emission certification values, in percent (%), for this engine family are:

this engine fami			ion (a/bh	n-hr)	S <u>moke</u>	Opacity_	(%)
Engine Family	<u>Exhau</u> THC	co_	ion (g/bh <u>NOx</u>	<u>PM</u>	Accel	<u>Lug</u>	<u>Peak</u>
TVS6.7R6DARA (TD73)	0.2	0.4	5.8	0.1	6	2	12

BE IT FURTHER RESOLVED: That the listed engine models comply with the "Exhaust Emission Standards and Test Procedures--Heavy-Duty Off-Road Diesel Cycle Engines" (Title 13, California Code of Regulations, Section 2423) for the aforementioned model year.

BE IT FURTHER RESOLVED: That the listed engine models also comply with the "Emission Control Labels--1996 and Later Heavy-Duty Off-Road Diesel Cycle Engines" (Title 13, California Code of Regulations, Section 2424) for the aforementioned model year.

BE IT FURTHER RESOLVED: That for the listed engine models, the manufacturer has submitted the materials to demonstrate certification compliance with the Board's emission control system warranty provisions (Title 13, California Code of Regulations, Section 2425 et seq.).

Engines certified under this Executive Order must conform to all applicable California emission regulations.

Executed at El Monte, California this 3 d

R. B. Summerfield

day of

Assistant Division Chief Mobile Source Division

Danuary 1996.

## 199<u>6</u> AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET **HEAVY-DUTY OFF-ROAD DIESEL ENGINES**

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Manufacturer <u>V(</u>	DLVO CONSTRUCT	ION EQUIPMENT,	VOLVO AB Engi	ne Family <u>· T</u>	/S6.7R6DARA	
Displacement:	6.7 /	408Lit	ters/Cubic Inc	ches Eng (	Config: <u>I-</u>	6
All Codes in E	Eng Fam: CA	49S 50S_X	<u>XX</u> Cert	: Test Procedi	ures: ARB_	EPA <u>XX</u>
Valves/Ports p	oer Cylinder_	2	_ Stro	okes per Combi	ustion Cycl	e 4-STROKE
		.55				
		Comp				
<pre>Fuel Type(s):</pre>	Dedicated <u>X</u>	Flex-Fuel	_ Dual-Fuel_	Die:	sel <u>XX</u> M10	0 M85
	CNG LN	IGLPG	Other (spe	ecify)		<del></del>
Diesel Cert Fu	uel: 40 CFR 8	86.1313-94 <u>XX</u>	Other (spe	ecify)		
Primary Servi	ce Equipment:	<u>Loaders, Hau</u>	<u>lers, Excavato</u>	ors		
Exhaust ECS (	e.g., MFI, TC,	CAC): <u>SPL</u> ,	TC, CAC	CAF	11000 TUNO	121
			(use abbrevia	tions per SAL	J1930 JUN9	
Engine Model (Eng Code)	Rated HP @ RPM	Fuel Rate @ <sub>3</sub> Rated HP mm <sup>3</sup> / stroke (lbs/hr)	Fuel Pump & Injector Part No.	ECM/PCM Part No.	EGR Valve Part No.	PTOX / Catalytic Converter Part No.
TD73 KCE	255 @ 2400	122 (101.7)	11030951 8188125			
TD73 KDE ( II )	205 @ 2100	115 (95.8)	8188120			
TD73 KFE ( III )	232 @ 2400	110 (91.7)	8188121			
TD73 KHE ( IV )	208 @ 1700	133 (110.9)	8188124			
TD73 KGE (V)	181 @ 1700	115 (95.8)	8188123			
				L.		
Date Issued: Revisions:					•	